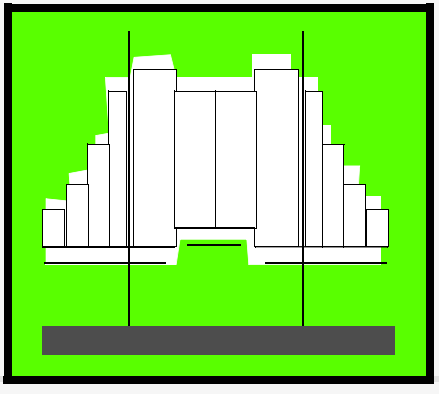
# Cabletron SmartSwitch 6000
# Enterasys Matrix E6



## Supports Multiple Management Modules

APRISMA SPECTRUM® POWERED SOLUTIONS

Device Management

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# Contents

# Introduction

This section introduces SPECTRUM Device Management documentation for SmartSwitch 6000 devices.

This introduction contains the following topics:



## Purpose and Scope

Use this documentation as a guide for managing SmartSwitch 6000 devices with the SPECTRUM management modules SM-CSI1076, SM-CSI1082, SM-CSI1088, SM-ENT1000, and SM-ENT1001. The documentation describes the icons, menus, and views that enable you to remotely monitor, configure, and troubleshoot SmartSwitch 6000 devices through software models in your SPECTRUM database.

Information specific to SmartSwitch 6000 devices is what is primarily included in this document. For general information about device management using SPECTRUM and explanations of SPECTRUM functionality and navigation techniques, refer to the topics listed under *Required Reading*.

## Required Reading

To use this documentation effectively, you must be familiar with the information covered by the other SPECTRUM online documents listed below.

- ***Getting Started with SPECTRUM for Operators***
- ***Getting Started with SPECTRUM for Administrators***
- ***How to Manage Your Network with SPECTRUM***
- ***SPECTRUM Views***
- ***SPECTRUM Menus***
- ***SPECTRUM Icons***
- ***SPECTRUM Software Release Notice***

# Supported Devices

The SPECTRUM management modules SM-CSI1076, SM-CSI1082, SM-CSI1088, SM-ENT1000 and SM-ENT1001 currently allow you to model the following Chassis and SmartSwitch 6000/Matrix E6 devices:

- The *6C105 and 6C107 Chassis* on Page 8, are modular chassis that can incorporate two load sharing power supplies and from five to seven SmartSwitch 6000 modules.
- The 6C110 chassis has cell switching backplane and frame transfer matrix backplane. Up to 10 modules can be installed into this chassis.
- The *SmartSwitch 6000 Modules* on Page 9, which includes Ethernet, Fast Ethernet, Gigabit Ethernet, and Carrier modules.
- Optional High Speed Interface Modules (HSIM), Very High Speed Interface Modules (VHSIM), and Fast Ethernet Port Interface Modules (FEPIM) that plug into the SmartSwitch 6000 modules and provide high speed backbone interfaces to Fast Ethernet, FDDI, ATM, WAN, and Gigabit Ethernet. HSIMs do have a different device icon appearance. This icon is shown next to the standard icon for the SmartSwitch 6000, Figure 2 on Page 12.
- The 6-SSRM-02 is a new module for the SmartSwitch 6000 chassis. The 6-SSRM-02 views are detailed in the ***Smart Switch Router*** document.

# Networking Characteristics

Each SmartSwitch 6000 module is designed with a fully distributed switching architecture, which allows the modules to be managed as single entities, with a single module acting as a proxy agent for the chassis. See *Management Modes* on Page 7.

The SmartSwitch 6000 provides port mirroring, port trunking, broadcast control, Quality of Service (QoS), VLAN, and topology protocol, all in either traditional 802.1d mode or Cabletron's SecureFast mode. Optional RMON support is also available.

The SmartSwitch 6000 can provide the following port connectivities:

- Switched Ethernet
- Switched Fast Ethernet
- MicroLAN Ethernet or Fast Ethernet
- Gigabit Ethernet uplinks
- OC-3, DS-3/E-3, and OC-12 switched ATM

# Management Modes

You can configure the SmartSwitch 6000 module to operate in one of three management modes: Distributed, Standalone, or Mixed.

**Note:** Refer to the appropriate SmartSwitch 6000 module user's guides for instructions on configuring the modules for these management modes.

## Distributed Mode

In this mode, the 6C105 chassis can be viewed as a single entity with a single IP address, however the 6C107(Matrix E7) doesn't support this feature yet. The chassis management functions are distributed to all installed modules. This means that a single module in the chassis (such as a 6E233-49) can be used to manage all installed modules. You configure all of the modules in the chassis to the Distributed mode and assign a single IP address to the chassis. SPECTRUM discovery and modeling results in a single Device icon being created in the Topology view for each management module. This icon represents the managing module. SPECTRUM management of the modules is through these Device icons.

## Standalone Mode

In this mode, each installed module provides its own management functions. You configure all of the modules in the chassis to Standalone mode and assign separate IP addresses for each module. SPECTRUM management is through the representative Device icons created for each module during discovery and modeling.

## Mixed Mode

This mode provides a method of operationally isolating a module (or modules) for security purposes. You set an IP address for the chassis and configure all non-secure modules in Distributed mode. The secure module gets its own IP address and is configured in Standalone mode. SPECTRUM management is through the representative Device icons created.

# 6C105 and 6C107 Chassis

Figure 1 shows the 6C105 chassis with two power supplies installed and no SmartSwitch 6000 modules installed.

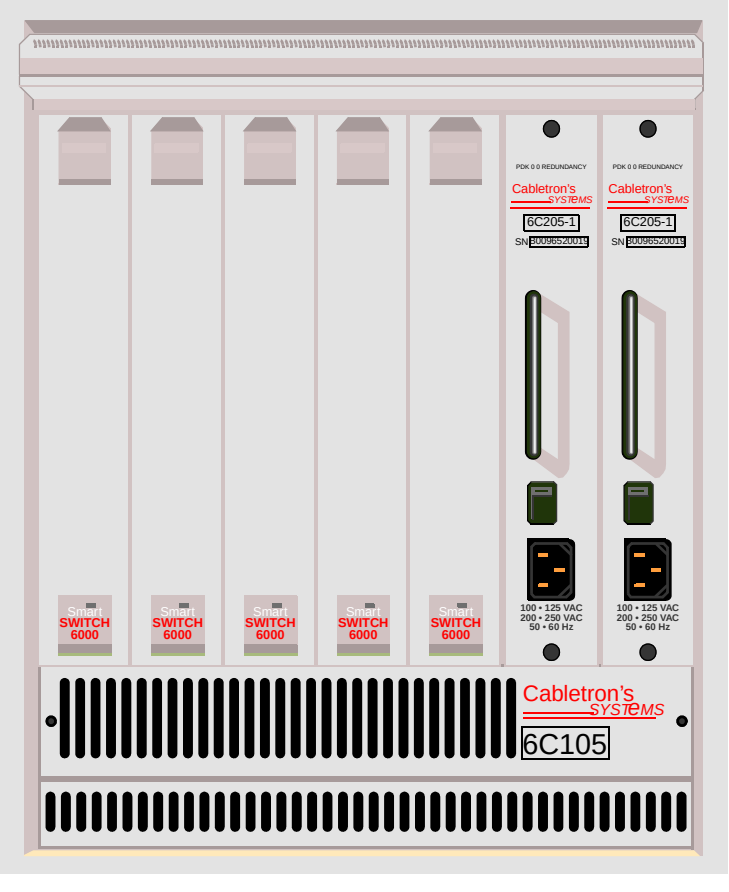
When installed, the modules interface to the Frame Transfer Matrix (FTM) backplane in the chassis, thus each module has a separate, independent backplane connection to every other module in the chassis.

The 6C107(Enterasys Matrix E7) chassis provides seven slots that can contain a variety of interface modules.

The 6C107's Frame Transfer Matrix Two (FTM2) backplane provides support for a new generation of advanced switching modules while the FTM1 backplane provides backward compatibility and support for the complete family of existing SmartSwitch 6000 modules.

The third generation module (6x3xxx) provides a "proxy" function. This function provides 1st and 2nd generation modules (which have only four backplane ports that connect to slots 1-5) with the ability to communicate with 3rd generation "proxy" modules in one of the first five slots. Note that the lowest numbered slot containing a 3rd generation "proxy" will always be the "proxy" module.

**Figure 1: SmartSwitch 6000 6C105 Chassis**




## SmartSwitch 6000 Modules

The modules are divided into three groups representing three technologies: Ethernet, Fast Ethernet, and Carrier. The groups are supported by SPECTRUM Management Module products as listed in Table 1.

**Table 1: SPECTRUM Products**

| Product | Module Group |
|---|---|
| SM-CSI1076 | 6E Ethernet modules |
| SM-CSI1082 | 6H Fast Ethernet modules |
| SM-CSI1088 | 6M Carrier Module |
| SM-ENT1000 | 6H3xx, 6G3xx |
| SM-ENT1001 | 6-SSRM-02 |

Most of the SmartSwitch 6000 modules include slots for optional HSIMs, VHSIMs, or FEPIMs.

All modules support all nine levels of RMON and Cabletron's SecureFast network services.

## 6E Ethernet Modules

These modules provide the front panel ports and interface uplink connectivities listed in Table 2.

**Table 2: 6E Series Connectivities**

| Module | Connectivity |
|---|---|
| 6E122-26 | 24 10BaseT ports via RJ45s plus two FEPIM slots |
| 6E132-25 | 24 10BaseT ports via RJ45s plus one HSIM slot |
| 6E123-26 | 48 10BaseT ports via two telcos plus two FEPIM slots |
| 6E133-25 | 24 10BaseT ports via two telcos plus one HSIM slot |
| 6E128-26 | 24 ports via MMF STs plus two FEPIM slots |
| 6E129-26 | 24 ports via SMF STs plus two FEPIM slots |
| 6E138-25 | 24 ports via MMF STs plus one HSIM slot |
| 6E139-25 | 24 ports via SMF STs plus one HSIM slot |
| 6E123-50 | 48 MicroLan 10BaseT ports via RJ21 telcos plus 2 FEPIM slots |
| 6E133-49 | 48 MicroLan 10BaseT ports via RJ21 telcos plus one HSIM slot |
| 6E233-49 | 48 Ethernet ports via RJ21 telcos plus one HSIM slot |

## 6H Fast Ethernet Modules

These modules provide the front panel ports and interface uplink connectivities listed in Table 3.

**Table 3: 6H Series Connectivities**

| Module | Connectivity |
|---|---|
| 6H122-08 | Six 10/100Base-TX ports via RJ45s plus two FEPIM slots |
| 6H122-16 | 16 10/100Base-TX ports via Cat 5 RJ45 UTPs |
| 6H128-08 | Six MMF SC ports and two FEPIM slots |
| 6H129-08 | Six SMF SC ports and two FEPIM slots |
| 6H202-24 | 24 10/100 Fast Ethernet ports via RJ45s |
| 6H252-17 | 16 10/100 Fast Ethernet ports via RJ45s and one VHSIM slot |
| 6H133-37 | Three RJ21 telcos (12 ports each in any combination of auto-negotiating 10BaseT Ethernet or 100BaseT Fast Ethernet) plus one HSIM slot |
| 6H133-37 | Three RJ21 telcos (12 ports each in any combination of auto-negotiating 10BaseT Ethernet or 100BaseT Fast Ethernet) plus one HSIM slot |
| 6H203-24 | 24 port 10/100 switching module via two RJ21 ports |
| 6H253-13 | 12 port 10/100 switching module via one RJ21 connector |

**Table 3: 6H Series Connectivities (Continued)**

| | |
|---|---|
| 6H258-17 | 16 MMF ports via MT-RJ connectors and one VHSIM slot |
| 6H259-17 | 16 SMF 100Base-FX ports and a flexible uplink slot for connectivity to high-speed LAN or WAN backbones |
| 6H262-18 | Six fixed RJ45 ports and 2 FEPIM slots |
| 6H302-48 | 48 RJ45 ports for the 6C105 or 6C107 |
| 6H303-48 | 48 RJ21 ports-10/100 Switch for 6C105/6C107 |
| 6H352-25 | 25 10/100 RJ45 ports |

## 6M146-04 Carrier Module

A SmartSwitch carrier uplink module. It provides two HSIM slots and two FEPIM slots.

## 6G Giganet Modules

These modules provide the front panel ports and interface uplink connectivities listed in Table 4.

**Table 4: 6G Series Connectivities**

| Module | Connectivity |
|---|---|
| 6G302-06 | 6 fixed 1000Base-T ports via RJ45 connectors |
| 6G306-06 | 6 ports 1000 Mbps Gigabit Ethernet via GPIM uplink modules |

# The SPECTRUM Model

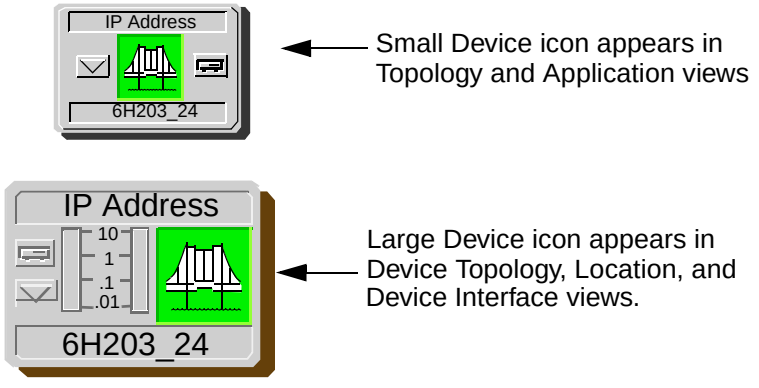
SPECTRUM uses a single model type for modeling and managing individual basic SmartSwitch modules or groups of modules on a network installed in, or connected to, the chassis. SPECTRUM also uses a single model type for modeling and managing the HSIM modules. The models provide access to the information needed to manage the modules, including software emulation of the actual module attributes and functionality. Refer to *Modeling* on Page 55 for modeling instructions.

The model type designators for the SmartSwitch 6000 use an under bar to replace the dash in the device model number. For example, 6E122_26 refers to the model type for the 6E122-26 module.

SPECTRUM's AutoDiscovery (as well as manual modeling procedures) results in the creation of Device icons that represent the modules. These icons provide double-click zones and Icon Subviews menus that let you access views displaying performance and configuration information.

Figure 2 shows examples of the device icons.

**Figure 2: Small and Large Device Icons**




The device-specific Icon Subviews menu options available from the Device icon are listed below.

| Option | Accesses the... |
|---|---|
| Fault Management | Fault Management View, which is described in the **How to Manage Your Network with SPECTRUM** documentation. |
| Device | *Device Views* (Page 16) |

| Option | Accesses the... |
|---|---|
| Device Topology | *Device Topology View* (Page 32) |
| Application | *Applications View* (Page 33) |
| Configuration | *Configuration Views* (Page 46) |
| Model Information | *Model Information View* (Page 54) |
| Primary Application | Menu options that let you select either Gen Bridge App or MIB-II as the primary application. |

The rest of this document is organized as follows:

- *Tasks* (Page 14)
- *Device Views* (Page 16)
- *Device Topology View* (Page 32)
- *Applications View* (Page 33)
- *Performance Views* (Page 44)
- *Configuration Views* (Page 46)
- *Model Information View* (Page 54).

# Tasks

This section lists the device management tasks alphabetically and provides links to descriptions of the views and/or tables used to perform the task.

## Alarm Thresholds (set)

- *Model Information View* on Page 54
- *Alarm Configuration* on Page 52

## Applications (change)

- *Application Label* on Page 19

## ATM Operation (check)

- *ATM Client Configuration View* on Page 50
- *ATM Client Application* on Page 38

## Backplane Connections (monitor)

- *Interface Options Panel* on Page 28
- *Backplane Module Icon* on Page 29

## Bridging Information (view)

- *Application Label* on Page 19

## Chassis Information (view)

- *Chassis Device View* on Page 16

## Concentrator Status (check)

- *FDDI MAC Device Configuration View* on Page 48

## Error Source (selection)

- *Error Source* on Page 53

## Fast Ethernet Operational Mode (check)

- *Repeater Configuration View* on Page 51

## FDDI Operation (check)

- *FDDI MAC Device Configuration View* on Page 48

## Model a SmartSwitch 6000

- *Modeling* on Page 55
- *Modeling Using the Chassis IP* on Page 59
- *Positioning the Chassis Device Icon* on Page 62

## Performance Statistics (view)

- *Performance Views* on Page 44

### Port Operation (monitor)

- *Chassis Module Icon* on Page 17
- *Interface Labels* on Page 20
- *Interface Device View* on Page 25
- *Administrative Status Label* on Page 27
- *Backplane Module Icon* on Page 29
- *Device Configuration View* on Page 46

### Port Operational Mode (set)

- *Interface Labels* on Page 20

### Ports (configure)

- *Repeater Configuration View* on Page 51

### Power Supply Status (check)

- *Chassis Information* on Page 24

### Repeater Frame and Error Stats (view)

- *Repeater Frame & Error Breakdown View* on Page 21

### Repeater Frame Size and Protocols (view)

- *Repeater Frame Size & Protocols View* on Page 22

### Repeater Performance (check)

- *Repeater Performance* on Page 21

### Repeater Port Status (check)

- *Repeater Configuration View* on Page 51
- *CsRipEnetRpt Repeater Application* on Page 43

### Repeater Port Condition Display (change)

- *Repeater Port Display Form* on Page 23

### Topology (check)

- *Device Topology View* on Page 32

### Traps (set Up)

- *Device Configuration View* on Page 46
- *Trap Configuration* on Page 52

### Virtual Channel Operation (check)

- *ATM Client Application VCL Table* on Page 39
- *Virtual Channel Link View* on Page 41

# Device Views

This section describes the Device views and subviews available for models of SmartSwitch 6000 devices in SPECTRUM.

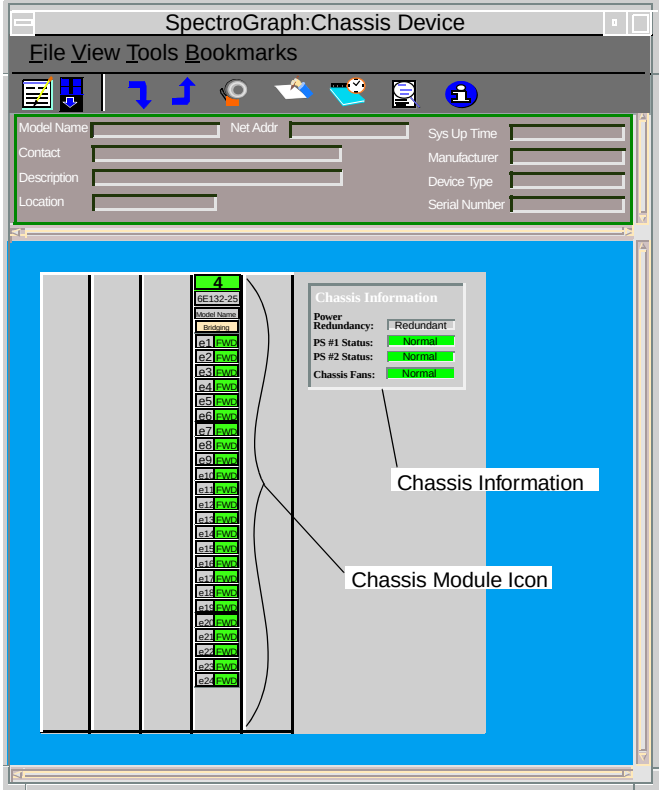
Device views use icons and labels to represent the modeled device and its components, such as modules, ports, and applications. There are four types of Device views for the SmartSwitch 6000 models.

- *Chassis Device View*
- *Interface Device View* on Page 25
- *Interface Options Panel* on Page 28
- *Physical Device View* on Page 31

## Chassis Device View

This view contains icons that represent the various physical modules installed within the chassis of the modeled devices. It also contains a Chassis Information panel that shows chassis power information. Figure 3 is an example of the view with a device installed in Slot 4 of the chassis. The Chassis Module icon is described under *Chassis Module Icon* on Page 17. The Chassis Information panel is described under *Chassis Information* on Page 24.

**Figure 3: 6C105 Chassis Device View**

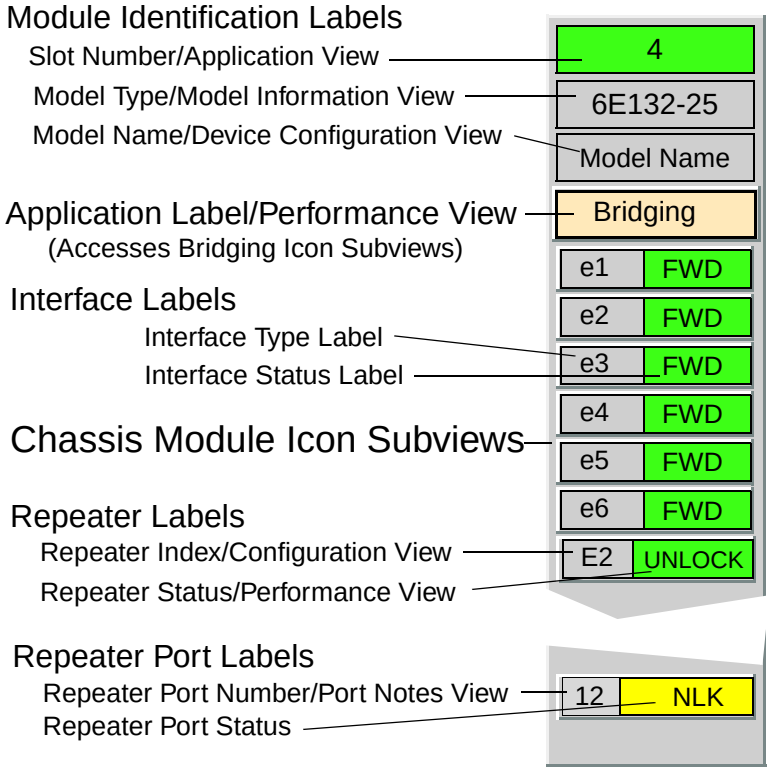


# Chassis Module Icon

This icon is a logical representation of the physical module, its location in the chassis, its front panel interfaces and ports.

Figure 4 shows an example of a Chassis Module icon. The callouts displayed in the illustration identify the labels and, when applicable, the view which provides double-click access.

**Figure 4: Chassis Module Icon**



# Module Identification Labels

These labels provide the information described below (see Figure 4).

### Slot Number

The module's location in the chassis. Double-click this label to open the Application view described under *Applications View* on Page 33.

### Model Type

The type of module in this chassis slot (e.g., 6E132-25). Double-click this label to open the Model Information view described in the ***SPECTRUM Views***.

### Model Name

The user-defined or default (IP address) model name. Double-click this label to open the *Device Configuration View* on Page 46.

# Module Icon Subviews

Table 5 describes each of the device-specific Icon Subviews menu selections available for the SmartSwitch 6000 modules.

**Table 5: Module Icon Subviews Menu Options**

| Menu Selection | Opens the... |
|---|---|
| DevTop | Device Topology view described in ***SPECTRUM Views***. |
| Application | *Applications View* on Page 33. |
| Configuration | *Device Configuration View* on Page 46. |
| Model Information | Model Information view described in ***SPECTRUM Views***. |
| Interface | *Interface Device View* on Page 25. |
| Application Display | Application selection dialog box, which allows you to select the application to be displayed in the Application label. Example: Bridging. |

## Application Label

This label displays the application currently selected, which is either Bridging, 802.1Q, or Physical. Bridging is the default application. To change the application, highlight the Chassis Module icon and select **View** > **Icon Subviews** > **Application Display**.

Double-click the Application label to open the Performance view, which is described in ***SPECTRUM Views***.

The Application label provides access to the Icon Subviews menu. Table 6 describes the Bridging Application Icon Subviews menu selections. There are no specific Icon Subviews menu selections for the Physical Application.

**Table 6: Bridging Application Icon Subviews**

| Option | Opens the... |
|---|---|
| Bridge Performance | Bridge Performance view described in ***SPECTRUM Views***. |
| Bridge Detail | Bridge Detail view described in ***Bridging Applications***. |
| Bridge Model Information | Model Information view described in ***SPECTRUM Views***. |
| Spanning Tree Information | Spanning Tree Information view described in ***Bridging Applications***. |
| Static Database Table | Static Database Table view described in ***Bridging Applications***. |
| Transparent Bridge Information | Transparent Bridge Information view with Forwarding Database and Port tables described in ***Bridging Applications.*** |

# Interface Labels

These labels represent the interfaces located on the front panel of the module. Each label provides access to an Icon Subviews menu, which contains the following three device-specific selections:

- **Operational Mode Configuration** allows you to set the interfaces operational mode to either Standard or Full Duplex.
- **Enable** and **Disable** allow you to control the port's operational status.

Each Interface label displays two information labels: an Interface Type label and an Interface Status label.

### Interface Type Label

This label identifies the type and number of the interfaces represented. For example, "e1" refers to Ethernet interface number one for that module.

### Interface Status Label

This label indicates the interface's operational status relative to the application using the colors and legends listed in Table 7 and Table 8. See *Application Label* on Page 19 for information on selecting the application to be displayed.

**Table 7: Bridging Application Interface Status**

| Color | Status | Description |
|---|---|---|
| Green | FWD | Bridge port is forwarding. |
| Blue | DIS | Port is disabled. |
| Magenta | LST | Bridge is in the listening mode. |
| Magenta | LRN | Bridge is in the learning mode. |
| Blue | SBY | Bridge port is in the standby mode. |
| Orange | BLK | Bridge port is in the blocking mode. |
| Red | BRK | Bridge port is broken. |
| Blue | UNK | The status is unknown. |

**Table 8: Physical Application Interface Status**

| Color | Status | Description |
|---|---|---|
| Green | ON | Port is operational. |
| Blue | OFF | Port is off. |
| Yellow | TST | Port is in the test mode. |

# Repeater Labels

The 6E123-50, 6E133-49, 6H123-50, and 6H133-37 modules have repeater ports. The repeater ports on the 6E123-50 and 6E133-49 have a fixed port speed of 10Mb while those on the 6H123-50 and 6H133-37 can be switched between 10 Mb and 100 Mb. The repeater application (CsRipEnetRptr) is used for 10 Mb and 100 Mb support on all of these modules, see the *CsRipEnetRpt Repeater Application* on Page 43.

The Chassis Module Icon provides repeater management via the Repeater labels, which display repeater status and provide access to views that display performance, configuration, and frame statistics information.

The Repeater labels also let you control what type of status is displayed on the Repeater Port labels (administrative or link status). The Repeater labels contain the following labels.

### Repeater Index

Identifies the repeater and provides double-click access to the *Repeater Configuration View* on Page 51.

### Repeater Status

Displays the repeater operational status and provides double-click access to the Performance View, which is described in ***SPECTRUM Views***.

The Repeater labels also provide access to the Icon Subviews menu listed in Table 9.

**Table 9: Repeater Label Icon Subviews Menu**

| Menu Selection | Opens the... |
|---|---|
| Repeater Performance | Performance View described in ***SPECTRUM Views***. |
| Repeater Frame & Error Breakdown | *Repeater Frame & Error Breakdown View* on Page 21 |
| Repeater Frame Size & Protocols | *Repeater Frame Size & Protocols View* on Page 22 |
| Repeater Configuration | *Repeater Configuration View* on Page 51 |
| Repeater Model Information | Model Information View described in ***SPECTRUM Views***. |
| Repeater Port Display Form | *Repeater Port Display Form* on Page 23, which lets you select the type of status displayed. |

# Repeater Frame & Error Breakdown View

This view displays frame and error statistical information for a selected repeater port. The statistics are displayed in the form of pie charts and tables.

The Frame Breakdown displays the numerical and statistical breakdown of all the frames transmitted and received through the selected repeater.

The Error Breakdown displays the number of traffic errors in an error-per-second format.

The buttons at the bottom of the view affect how the statistics are represented in the pie charts and tables, as described below.

**Total**
Displays the current statistical information for all items contributing to the total value.

**Delta**
Displays the difference between the previously polled values and the current value of every item contributing to the total.

**Accum**
Displays the accumulated statistical information for all items since the Accum button was last selected.

**Clear**
Restarts the counter. The values will continue to accumulate until **Clear** is selected or another representation mode is selected.

**Note:** Selecting **Total**, **Delta**, or **Accum** affects the numerical as well as graphical representation of every item contributing to the total.

For more information on the individual error types, refer to ***How to Manage Your Network with SPECTRUM***.

## Repeater Frame Size & Protocols View

This view displays a statistical breakdown of frame sizes and protocols for a selected repeater port. The frame size and protocol breakdowns are displayed in the form of pie charts and tables (as described above for the Repeater Frame & Error Breakdown view).

## Repeater Port Display Form

This option on the Repeater label Icon Subviews menu provides two choices: Admin and Link. These choices determine which operational condition is displayed on the associated Repeater Port labels. For example, if you select Admin via the E1 Repeater label, the Repeater Port labels associated with E1 (i.e., Ports 1 through 12) will display the administrative status.

## Repeater Port Labels

The 6E123-50 and 6E133-49 modules have 10 Mb repeater ports while the 6H123-50 and 6H133-37 modules have the capability of switching ports between 10 Mb and 100 Mb repeaters. For example, a 6H133_37 model would have three 100 Mb repeater models, but depending on the configuration, it might have six repeater models, three at 10 Mb and three at 100 Mb. The CsRipEnetRptr application is used for all these modules for either 10 Mb or 100 Mb support.

The Chassis Module Icon provides Repeater Port labels, which allow you to perform repeater port management. The views accessible from the Repeater Port label Icon Subviews menu are listed in Table 10.

**Table 10: Repeater Port Label Icon Subviews**

| Menu Selection | Description |
|---|---|
| Port Notes | Opens a note pad for your use. |
| Port Frame & and Error Breakdown | Opens the Repeater Port Frame & Error Breakdown view. |
| Port Frame Size & Protocols | Opens the Repeater Port Frame Size & Protocols view. |
| Enable/Disable Port | Opens a dialog box that lets you enable or disable the port. |

### Repeater Port Number

Shows an index number identifying a particular repeater port.

### Repeater Port Status

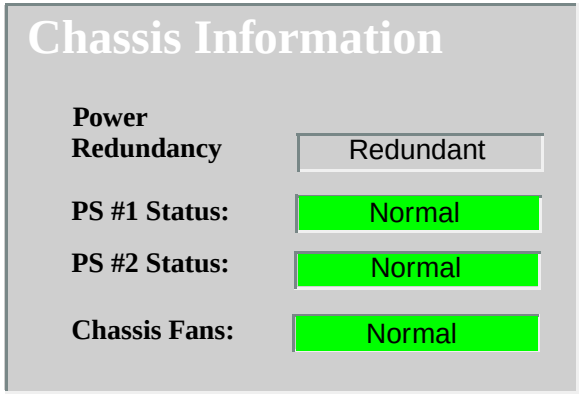
Indicates the port activity status.

The Repeater Port Frame & Error Breakdown view and Repeater Port Frame Size & Protocols view provide pie charts and tables that are similar to what is described for the *Repeater Frame & Error Breakdown View* on Page 21 and the *Repeater Frame Size & Protocols View* on Page 22.

# Chassis Information

This area of the Chassis Device view provides information for the chassis power modules and cooling fans. Figure 5 shows the Chassis Information fields as displayed in the Chassis Device view.

**Figure 5: Chassis Information**




### Power Redundancy

The source of power for the chassis. `Redundant` indicates that power from the secondary source is being used for the chassis. `NON-Redundant` indicates that power from the primary power source is being used.

### PS #1 Status

The current status of power supply one.

### PS #2 Status

The current status of power supply two.

### Chassis Fans

The operation state of the chassis fans.

Table 11 lists the possible states and color indication for the power supplies and chassis fans.

**Table 11: Chassis Information Status Definitions**

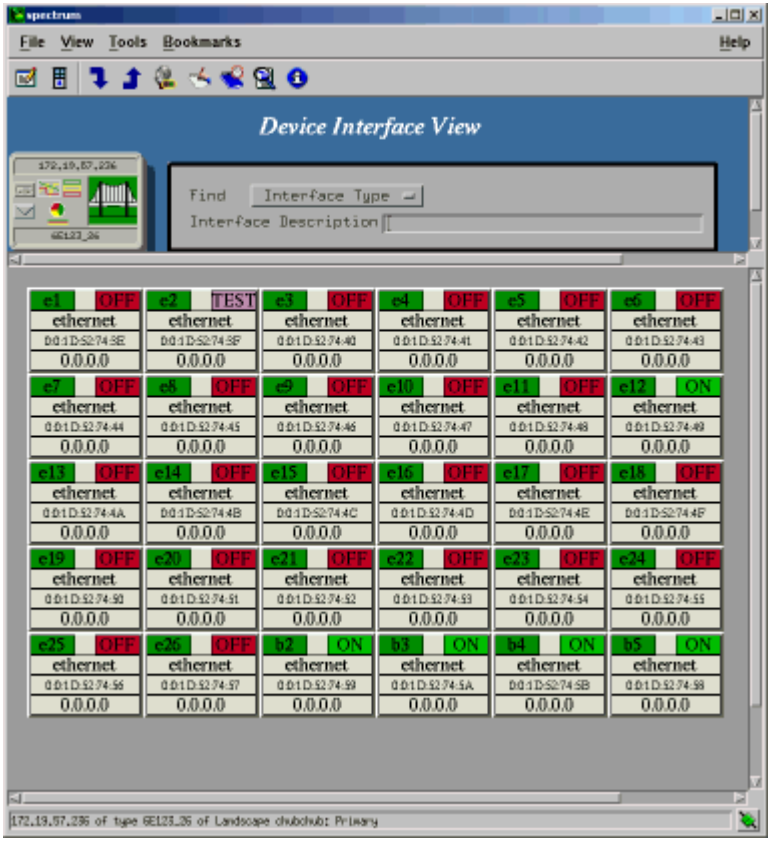
| Color | Definition |
|---|---|
| Green | Normal |
| Gray | Not installed |
| Red | Not operational |
| Blue | Unknown |

# Interface Device View

***Access:*** *From the* ***Icon Subviews*** *menu of the SmartSwitch 6000, select* ***Device > Interface****.*

This view (Figure 6) provides dynamic configuration and performance information for each of the device's serial/network I/O ports, which are represented by Interface icon in the bottom panel of the view, as shown in Figure 6.

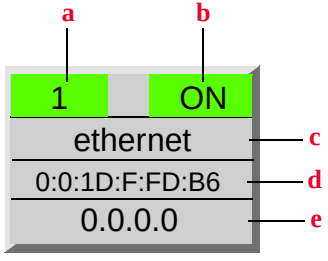
**Figure 6: Interface Device View**



# Interface Icons

Figure 7 shows a close-up of an Interface icon from the Device view. Most of the informational labels on the icon also provide double-click access to other views, as explained in the following label descriptions.

**Figure 7: Interface Icon**




a *Interface Number Label*

b *Administrative Label*

c *Interface Type Label*

d *MAC Address Label*

e *IP Address Label*

### Interface Number Label

This label identifies this interface (”e” indicates an Ethernet interface, “b” indicates a backplane interface, and the numeral represents the interface number on this module).

### Administrative Label

This label displays the state of this port (`On`, `Off`, `Testing`). Table 12 and Table 13 list the possible states relative to the application selected. The default application for this view is Physical (MIB-II). Double-click this label to access the Interface Configuration view. See the ***SPECTRUM Views*** documentation.

**Table 12: Physical Application Administrative Status**

| Color | Status | Description |
|---|---|---|
| Green | ON | Port is operational |
| Blue | OFF | Port is off |
| Magenta | TST | Port is in the test mode |

**Table 13: Administrative Status Label**

| Color | Status | Description |
|---|---|---|
| Green | FWD | Bridge port is forwarding |
| Blue | DIS | Port is disabled |
| Magenta | LST | Bridge is in listening mode |
| Magenta | LRN | Bridge is in learning mode |
| Orange | BLK | Bridge port is in blocking mode |
| Red | BRK | Bridge port is broken |

### Interface Type Label

This label displays the type of network interface module (e.g., Ethernet, FDDI, etc.). Double-click this label to access the *Interface Configuration Table* on Page 47.

### MAC Address Label

This label displays the physical address of the network interface module and accesses the CSI Port Model Information view described in ***SPECTRUM Views***.

### IP Address Label

This label displays the IP address for the interface. Double-click this label to open the *Secondary Address Panel* (Page 27).



## Interface Icon Subviews

Table 14 describes each of the Icon Subviews menu selections available for the Interface icon.

**Table 14: Interface Icon Subviews**

| Menu Selection | Opens the... |
|---|---|
| Configuration | Interface Configuration view (see ***SPECTRUM Views***). |
| Secondary Address Panel | Panel that provides the secondary address and mask for the interface. |
| Protocols (with HSIM only) | *ATM Client Application* on Page 38 |
| Model Information | Model Information View described in ***SPECTRUM Views***. |

## Secondary Address Panel

***Access:*** *From the **Icon Subviews** menu for the Interface icon in the Device view, select **Secondary Address Panel**.*

This panel provides a table of IP addresses and masks obtained from the Address Translation table within the device's firmware. You can change the current address displayed in the **IP Address** field by selecting an entry from the table in this panel and clicking the **Update** button.

# Interface Options Panel

This area of the Interface Device view (Figure 6) allows you to modify the presentation of a highlighted icon. The Interface Options panel provides the information described below.

### Interface Description

This field provides a description of the highlighted interface. If no interface is highlighted, this field is empty or shows the interface previously highlighted.

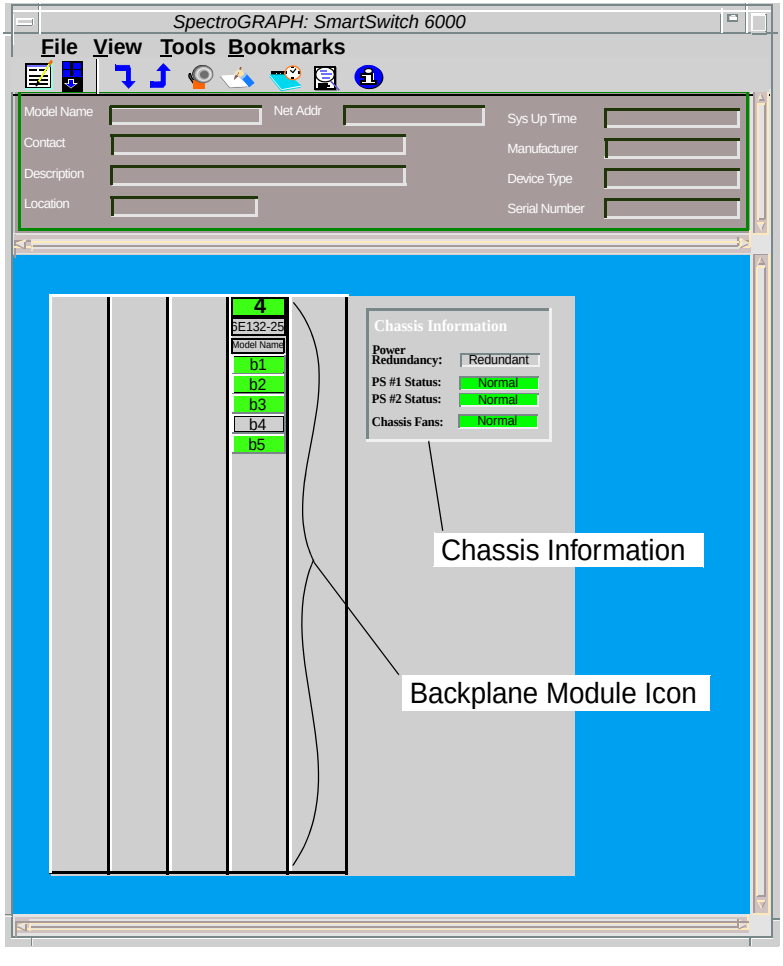
# Backplane Device View

***Access:*** *From the Chassis Device view, select* ***View*** *>* ***Page*** *>* ***Backplane.***

A sample Backplane Device view is shown in Figure 8. The view contains Backplane Module icons that represent the backplane connections for each of the modules installed in the chassis, see, *Backplane Module Icon* on Page 29.

The Backplane Device view also contains a Chassis Information panel, which shows the same information as a similar panel on the Chassis Device view, see Chassis Information, *Chassis Information* on Page 24.

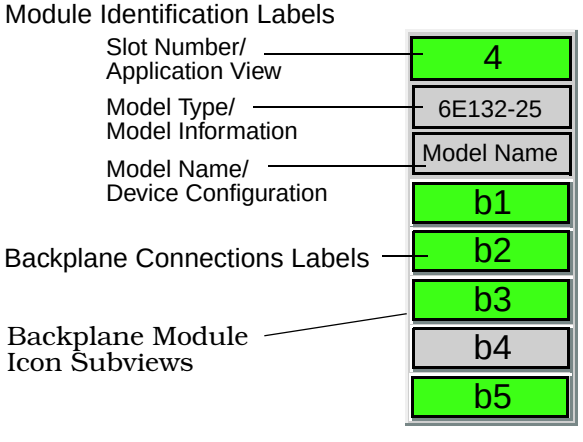
**Figure 8: 6C105 Backplane Device View**



# Backplane Module Icon

Figure 9 shows a sample Backplane Module icon, which displays in the Backplane Device view. This icon represents the physical module, its location in the chassis, and its backplane interfaces.

**Figure 9: Backplane Module Icon**




# Backplane Module Icon Subviews

Table 15 describes the device-specific Backplane Module Icon Subviews menu selections for the module.

**Table 15: Backplane Module Icon Subviews**

| Option | Open the... |
|---|---|
| DevTop | *Device Topology View* on Page 32 |
| Application | *Applications View* on Page 33 |
| Configuration | *Device Configuration View* on Page 46 |
| Model Information | *Model Information View* on Page 54 |
| Interface | *Interface Device View* on Page 25 |

# Module Identification Labels

These labels provide the following information that identifies a specific device.

### Slot Number

The module's location in the chassis. Double-click this area to open the Application view described under *Applications View* on Page 33.

### Model Type

The type of module in the chassis (for example 6E132-25). Double-click this area to open the *Model Information View* on Page 54.

### Model Name

A user-defined name; otherwise, it defaults to the IP address. Double-click this area to open the *Device Configuration View* on Page 46.

# Backplane Connections Labels

These labels represent the interfaces between the module and the FTM backplane. The device-specific Icon Subviews menu selection for these labels is **Configuration**, which opens a dialog box that lets you enable or disable the selected port. Note in Figure 14 that the Backplane Module icon has a gray Backplane Connection label (b4), which corresponds with interface four of the chassis backplane.

Table 16 describes the possible operational states of the backplane connections.

**Table 16: Backplane Connection Status Descriptions**

| Color | Status | Description |
|---|---|---|
| Green | ON | Operational |
| Yellow | NLK | Operational but not linked |
| Magenta | Test | Operational test |
| Blue | Off | Operationally and administratively down |
| Red | Off | Operationally down but administratively enabled |
| Gray | UNK | Unknown |

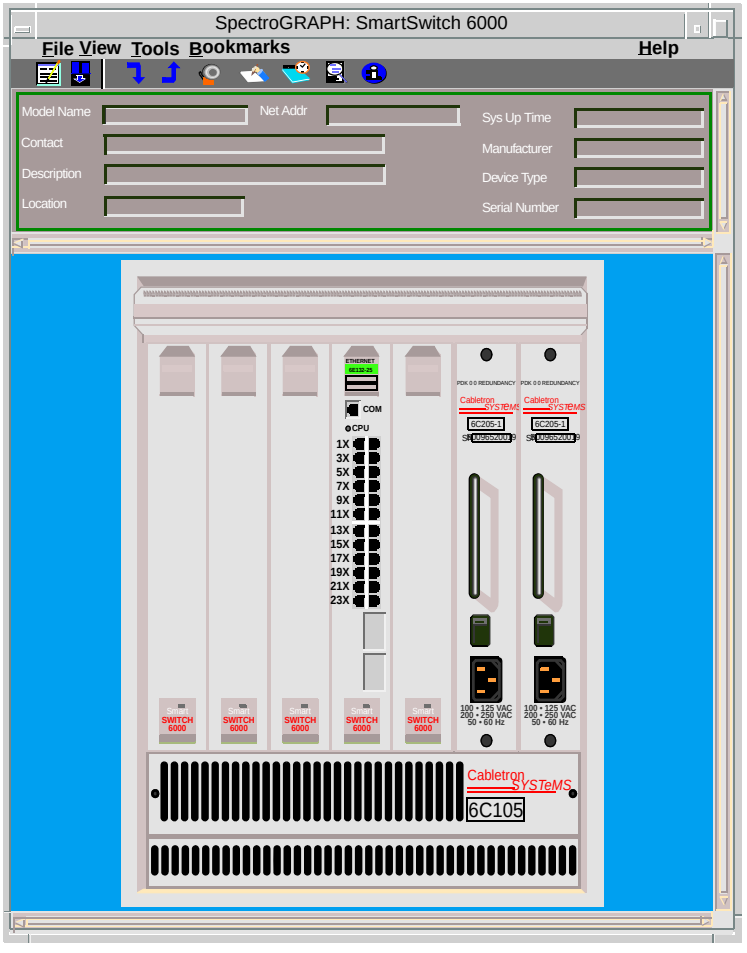
## Chassis Information

The Chassis Information panel within the Backplane Device view provides the same information as a similar panel in the Chassis Device view described under *Chassis Information* on Page 24.

## Physical Device View

This view provides a static image of the 6C105 or the 6C107 chassis and the modules installed in it. Figure 10 shows a sample Physical Device view with two power supplies and a module installed in Slot 4.

**Figure 10: 6C105 Physical Device View+**



# Device Topology View

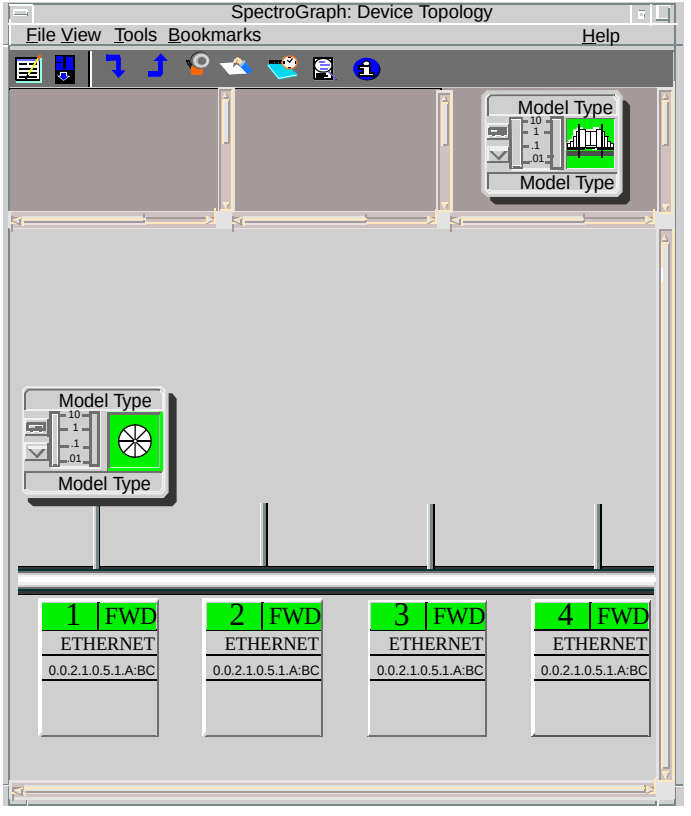
This section provides brief descriptions of the Device Topology views available for models of SmartSwitch 6000 devices in SPECTRUM.

***Access:*** *From the* ***Icon Subviews*** *menu for the SmartSwitch 6000 Device icon, select* ***DevTop.***

Device Topology views (Figure 11) show the connections between a modeled device and other network entities. The lower panel of the Device Topology view for the SmartSwitch 6000, uses interface icons to represent the device's serial/network I/O ports. These icons provide the same information and menu options as those in the *Interface Device View* on Page 25. If there is a device connected to a particular interface, a device icon appears on the vertical bar above the interface icon along with an icon representing the network group that contains the device.

For further information on Device Topology views, refer to the ***SPECTRUM Views*** documentation.

**Figure 11: Device Topology View**



# Applications View

This section describes the Application view and the associated application-specific subviews available for models of SmartSwitch 6000 devices in SPECTRUM.

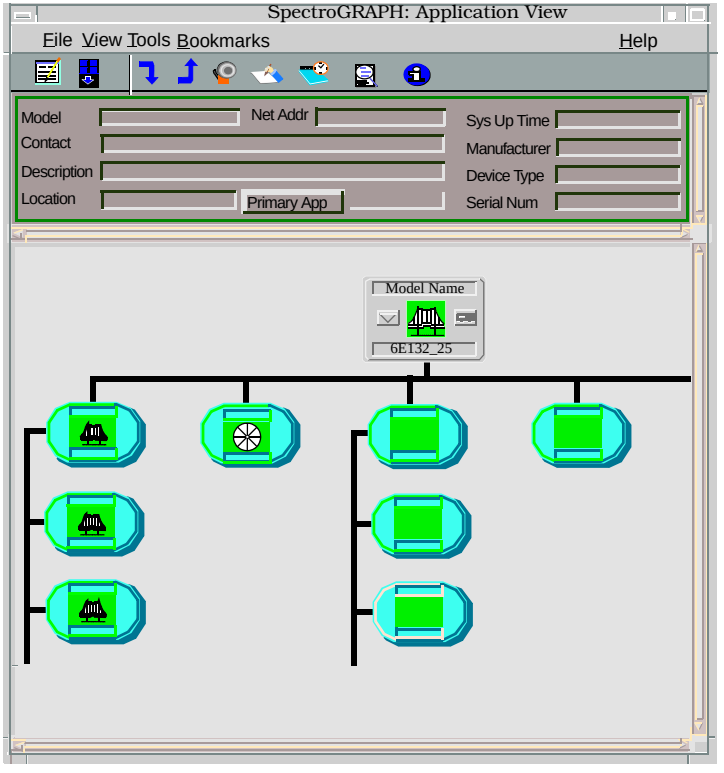
***Access:*** *From the **Icon Subviews** menu for the SmartSwitch 6000 Device icon, select **Application**.*

## Main Application View

When a device model is created, SPECTRUM automatically creates models for each of the major and minor applications supported by the device. The main Application view identifies all of these application models, shows their current condition status, and provides access to application-specific subviews. Figure 12 shows this view in the Icon mode. If you prefer the List mode, which displays applications as text labels, select **View > Mode > List**.

For more information on this view, refer to the ***MIBs and the Application View*** documentation.

**Figure 12: Application View**



# Common Applications

For the most part, these applications represent the non proprietary MIBs supported by your device. Listed below (beneath the title of the document that describes them) are some of the common applications currently supported by SPECTRUM.

**Note:** The documents listed are available for viewing at: www.aprisma.com/manuals/

- ***Routing Applications***
  - Generic Routing
  - Repeater
  - AppleTalk
  - DECnet
  - OSPF
  - OSPF2
  - BGP4
  - VRRP
- ***Bridging Applications***
  - Ethernet Special Database
  - Spanning Tree
  - Static
  - Transparent
  - PPP Bridging
  - Source Routing
  - Translation
  - QBridge
- ***MIB II Applications***
  - SNMP
  - IP
  - ICMP
  - TCP
  - System2
  - UDP
- ***Transmission Applications***
  - FDDI
  - Point to Point
  - DS1
  - DS3
  - RS-232
  - WAN
  - Frame Relay
  - Token Ring
  - Ethernet
  - rfc1317App
  - rfc1285App
  - rfc1315App
  - 802.11App
  - SONET

- ***Technology Applications***
  - APPN
  - ATM Client
  - DHCP
  - PNNI
  - rfc1316App
  - DLSw
- ***DOCSIS Applications***
  - DOCSISCblDvApp
  - DOCSISQOSApp
  - DOCSISBPI2App
  - DOCSISBPIApp
  - DOCSISIFApp
- ***Digital Subscriber Line (DSL) Applications***
  - ADSL

# Device-Specific Applications

The following device-specific applications are described in the remainder of this section:


- *802_1Q_VLAN Application* (Page 36)
- *FDDI MAC Application* on Page 38 (available with optional HSIM)
- *ATM Client Application* on Page 38 (available with optional HSIM)
- *CsRipEnetRpt Repeater Application* on Page 43


**Note:**

Aprisma Management Technologies can provide training, technical assistance, and custom engineering support services for creating application models and their associated views.

# 802_1Q_VLAN Application

***Access:*** *From the **Icon Subviews** menu for the 802_1Q_VLAN Application view, select **VLAN Table**.*

Double-clicking on any entry in this table displays the *VLAN Table Details View* (Page 36) described later in this section.

This view provides the following information.

**VID**
VLAN identification number.

**VLAN Name**
Name of the selected VLAN.

**VLAN Status**
Status of the selected VLAN.

## VLAN Table Details View

***Access:*** *Double-click any entry in the VLAN Table view.*

This view allows you to edit information for the VLAN Application.

You may edit the following information.

**VLAN VID**
This field is not writable and provides the VLAN identification number.

**VLAN Name**
You may change the name of this VLAN to anything you desire.

**VLAN Status**
You can either `enable` or `disable` this VLAN.

# Chassis Applications View

***Access:*** *From the **Icon Subviews** menu for the SmartSwitch 6000 device icon, select **Chassis Application.***

The Chassis Application view for either the 6C105 or the 6C107 (Matrix E7) shows a single chassis icon. There are four views available from the chassis device icon. Table 17 lists the views available from the Chassis Device icon:

**Table 17: Chassis Device Icon Subviews Menu**

| View | Description |
|---|---|
| Device View | *Chassis Device View* on Page 16 |
| Model Information View | *Model Information View* on Page 54 |

**Table 17: Chassis Device Icon Subviews Menu (Continued)**

| View | Description |
|---|---|
| Container View | This view displays the modules that are contained in the chassis and provide access to the *Device Topology View* on Page 32, *Chassis Device View* on Page 16, and *Bridging Performance View* on Page 45. |
| Module View | *Module View* on Page 37 |

# Module View

***Access:*** *From the **Icon Subviews** menu for the 6C105/6C107 Device icon in Chassis Application view, select **Module View**.*

This view provides the following information:

### Condition
The state of the module. The possible states are: `Normal`, `Minor`, or `Major`.

### Slot
Displays what slot the module currently resides within.

### Module Type
The type of module.

### Network Address
The network address of the module.

### Community String
The type of community string currently in place on the selected module.

## FDDI MAC Application

This section describes the FDDI MAC (FddiMAC) Application, which is available for modules having the optional HSIM installed.

Table 18 lists the application-specific subviews available from the Icon Subviews menu for the FDDI MAC application.

**Table 18: FDDI MAC Icon Subviews**

| Menu Selection | Description |
|---|---|
| DevTop | Opens the Device Topology View described in ***SPECTRUM Views***. |
| Station List | Opens the FDDI Station List View described in ***Miscellaneous Applications***. |
| Acknowledge | Allows you to acknowledge an alarm condition. |
| Configuration | *Device Configuration View* on Page 46 |
| Model Information | Opens the Model Information View described in ***SPECTRUM Views***. |



# ATM Client Application

This application is used to monitor and control ATM channels via the ATM Client Application VCL Table described below. Table 19 lists the application-specific subviews available for the application.

**Table 19: ATM Client Application Icon Subviews**

| Option | Opens the... |
|---|---|
| Configuration | *Device Configuration View* on Page 46 |
| Model Information | Model Information View described in ***SPECTRUM Views.*** |
| VCL Table | *ATM Client Application VCL Table* on Page 39 |
| Interfaces | Interface Configuration view (see ***SPECTRUM Views***). |

# ATM Client Application VCL Table

***Access:*** *From the **Icon Subviews** menu for the ATM Client Application icon, select **VCL Table**.*

This view contains the following information:

### Admin Status
Implemented only for a VCL that terminates a VCC (i.e., one that is not cross-connected to other VCLs). Its value (`Up or Down`) specifies the desired administrative state of the VCL, i.e., whether traffic flow is enabled or disabled.

### Oper Status
Indicates the current operational status of the VCL. `Up` and `Down` indicate whether the VCL is operational. `Unknown` indicates that the status of this VCL cannot be determined.

### Last Change
The value of sysUpTime at the time this VCL entered its current operational state. If the current state was entered prior to the last re-initialization of the agent, then this field contains a zero value.

### RTD (Receive Traffic Description) Index
The value of this field identifies the row in the ATM Traffic Descriptor Table that applies to the receive direction of this VCL.

### TTD (Transmit Traffic Description) Index
The row of the ATM Traffic Descriptor Table that applies to the transmit direction of this VCL.

### AAL (ATM Adaptation Layer) Type
An instance of this field only exists when the local VCL endpoint is also the VCC endpoint and AAL is in use. The field indicates the type of AAL used on this VCC, which includes AAL1, AAL3/4, and AAL5. The `other` type is a user-defined AAL type. The `unknown` type indicates that the AAL type cannot be determined.

### Transmit Size
An instance of this field only exists when the local VCL endpoint is also the VCC endpoint and AAL5 is in use. The field indicates the maximum AAL5

CPCS SDU size in octets that is supported on the transmit direction of this VCC.

### Receive Size

This field is used when the local VCL endpoint is also the VCC endpoint and AAL5 is used. It indicates the maximum AAL5 CPCS SDU size in octets that is supported on the receive direction of this VCC.

### Encaps Type

An instance of this field only exists when the local VCL endpoint is also the VCC endpoint and AAL5 is in use. The field indicates the type of data encapsulation used over the AAL5 SSCS layer. (Reference RFC 1483, Multiprotocol Encapsulation over ATM AAL5, and the ATM Forum LAN Emulation specification.)

### VCL CC (Cross Connect) Id

This field is implemented only for a VCL that is cross-connected to other VCLs that belong to the same VCC. All such associated VCLs have the same value as this field, and all their cross-connections are identified by entries in the Cross Connect Table for which VCL CC Id has the same value. The value of this field is initialized after the associated entries in the Cross Connect Table have been created.

### Row Status

This field is used to create, delete, or modify a row in this table. To create a new VCL, this field is initially set to `createAndWait` or `createAndGo`. This field must not be set to `active` unless the following columnar fields exist in this row:

- RTD Index
- XTD Index
- AAL Type (if the local VCL endpoint is also the VCC endpoint)
- Transmit Size (for AAL5 connections only)
- Receive Size (for AAL5 connections only)
- Encaps Type (for AAL5 connections only)

**Note:** The Community Name field in the Communication Information panel of the Model Information view must be set to “private” in order to change the fields in the table views.

To make a change to the rows in the table view, do the following:

1. In the Communication Information panel, change the Community Name field to `private`.
2. From the Icon Subviews menu, select **Table View**.

3 Set the path information for the row you wish to create, change, or remove.

4 Press **Return** and click **OK**.

5 To create or change a row, click the **Create** button, change the applicable fields in the Change view and click the right mouse button. Click **OK**.

6 Click the **Validate Row** button and return to the application table view to see the change.

7 To remove a row, highlight it, click the **Remove** button, and then the **Update** button.

The row will then be removed from the table view.

Double-clicking a field entry opens the interface-specific ATM Switch Application Virtual Channel Link view, which is described below.

# Virtual Channel Link View

***Access:*** *From the **Icon Subviews** of the ATM Application icon, select **Virtual Channel Link.***

### Interface
The interface index for this VPI and VCI.

### VPI (Virtual Path Identifier)
The VPI value of the VCL. The maximum VPI value cannot exceed the value allowable by the Interface MaxVPI Bits.

### VCI (Virtual Channel Identifier)
The VCI value of the VCL. The maximum VCI value cannot exceed the value allowable by the Interface MaxVCI Bits.

### Admin Status
Implemented only for a VCL that terminates a VCC (i.e., one that is not cross-connected to other VCLs). Its value (`Up` or `Down`) specifies the desired administrative state of the VCL, i.e., whether traffic flow is enabled and disabled for this VCL.

### Oper Status
The current operational status of the VCL. `Up` and `Down` indicate that the VCL is operational or not operational, respectively. Unknown indicates that the status of this VCL cannot be determined.

### Row Status
Used to create, delete or modify a row in this table. To create a new VCL, this field is initially set to `createAndWait` or `createAndGo`. This field must not be set to `active` unless the following columnar fields exist in this row:

- RTD Index
- XTD Index
- AAL Type (if the local VCL endpoint is also the VCC endpoint)
- Transmit Size (for AAL5 connections only)
- Receive Size (for AAL5 connections only)

- Encaps Type (for AAL5 connections only)

**Encaps Type**
Only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The field indicates the type of data encapsulation used over the AAL5 SSCS layer. (Reference RFC 1483 Multiprotocol Encapsulation over ATM AAL5 and the ATM Forum LAN Emulation specification.)

**AAL (ATM Adaptation Layer) Type**
Only exists when the local VCL endpoint is also the VCC endpoint, and AAL is in use. The field indicates the type of AAL used on this VCC, which includes AAL1, AAL3/4, and AAL5. The value `Other` is a user-defined AAL type. `Unknown` indicates that the AAL type cannot be determined.

**Last Change**
The value of sysUpTime at the time this VCL entered its current operational state. If the current state was entered prior to the last re-initialization of the agent, then this field contains a zero value.

**Cross Connect Id**
Implemented only for a VCL that is cross-connected to other VCLs that belong to the same VCC. All such associated VCLs have the same value of this field, and all their cross-connections are identified by entries in the Cross Connect Table for which VCL CC Id has the same value. The value of this field is initialized by the agent after the associated entries in the Cross Connect Table have been created.

**Xmit Descr Index**
The row of the ATM Traffic Descriptor Table that applies to the transmit direction of this VCL.

**Transmit Size**
Only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The maximum AAL5 CPCS SDU size in octets that is supported on the transmit direction of this VCC.

**Rcv Descr Index**
The row in the ATM Traffic Descriptor Table that applies to the receive direction of this VCL.

**Receive Size**
Only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The maximum AAL5 CPCS SDU size in octets that is supported on the receive direction of this VCC.

# CsRipEnetRpt Repeater Application

***Access:*** *Double-click the* ***CsRipEnetRpt Repeater*** *Application icon.*

The CsRipEnetRpt supports the 6H123_50, 6E133_49, 6H123_50, and 6H133_37 model types.

Table 20 lists all the application-specific subviews available from the Icon subviews menu for this application.

**Table 20: CsRipEnetRpt Application Icon Subviews**

| Menu Selection | Open the... |
|---|---|
| DevTop | *Device Topology View* on Page 32 |
| Configuration | *Repeater Configuration View* on Page 51 |
| Information | *Model Information View* on Page 54 |

# Performance Views

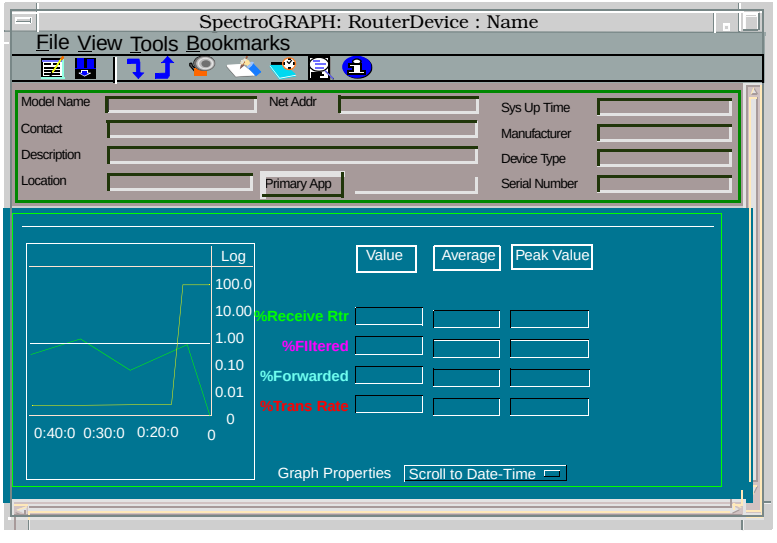
This section introduces the Performance view. For details concerning this view, refer to the ***SPECTRUM Views*** documentation.

Performance views display performance statistics in terms of a set of transmission attributes, e.g., cell rates, frame rates, % error, etc. A typical view is shown in Figure 13. The instantaneous condition of each transmission attribute is recorded in a graph. The statistical information for each attribute is presented in the adjacent table.

Generally, you determine performance at the device level through Performance views accessed from the Device and Application icons. You determine performance at the port/interface level through Performance views accessed from Interface icons.

For more information on Performance views, refer to the ***SPECTRUM Views*** documentation.

**Figure 13: Device Performance View**



# Bridging Performance View

***Access:*** *From the Application label of the Chassis Module icon, select* ***Bridge Performance.***

This view provides the following information on current and historical frame rate statistics for the bridging application:

- Received Rate
- % Filtered
- % Forwarded
- Transmitted Rate
- 
- Total Packet Rate
- In Load
- Out Load
- Total Load



# Repeater Port Performance View

***Access:*** *From the Chassis Module icon, select Repeater Label,* ***Repeater Performance.***

This view provides the following current, average, peak frame rate, and error statistics for repeater ports on the 6E123-50, 6E133-49, 6H123-50, and 6H133-37 modules:

- Load
- Frame Rate
- % Error
- % Collisions

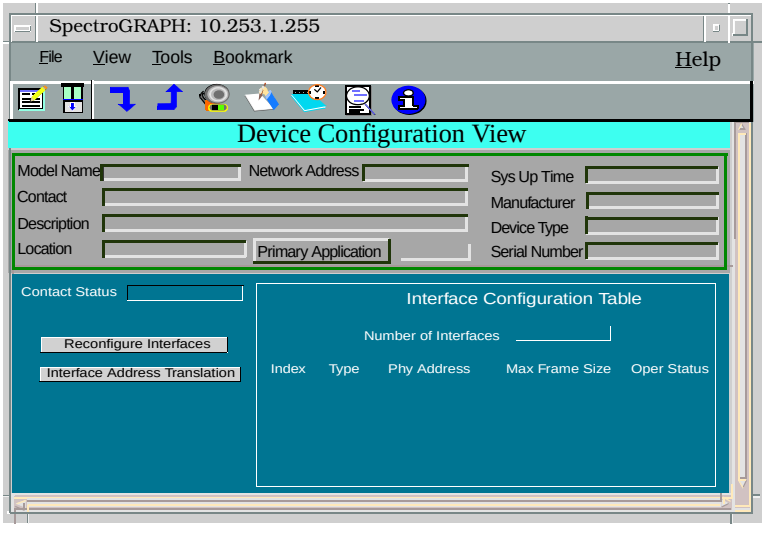
# Configuration Views

This section describes the various Configuration views and subviews available for models of SmartSwitch 6000 devices in SPECTRUM.

Configuration views (Figure 14) allow you to view and modify current setting for the modeled device and its interfaces, ports, and applications. The following Configuration views are available for models of the SmartSwitch 6000:

- *Device Configuration View* (Page 46)
- *FDDI MAC Device Configuration View* (Page 48) (available with optional HSIM or FEPIM)
- *ATM Client Configuration View* (Page 50) (available with optional HSIM or FEPIM)
- *Repeater Configuration View* (Page 51)

**Figure 14: Device Configuration View**



# Device Configuration View

***Access:*** *From the **Icon Subviews** menu of the SmartSwitch 6000 Device icon, select **Configuration**.*

This view (Figure 14 on Page 46) provides status and configuration information about the device as a whole as well as on a port-by-port basis. Fields and Column headings with the Device Configuration view and its subviews are explained in further detail in the ***SPECTRUM Views*** documentation.

### Contact Status
Indicates whether a connection has been established with the module.

**Reconfigure Interfaces**

This button updates the interfaces displayed in SPECTRUM to reflect any changes.

**Interface Address Translation**

Refer to the ***SPECTRUM Views*** documentation.

## Interface Configuration Table

This section of the Device Configuration views provides the following information:

### Number of Interfaces
The number of interfaces available from the module.

### Index
The numerical value identifying the port.

### Type
The type of hardware interface for the port.

### Phy Address
The MAC address of the port.

### Max Frame Size
The maximum frame size for the module.

### Oper Status
The current operational state of the port.

# FDDI MAC Device Configuration View

***Access:*** *From the **Icon Subviews** menu for the Chassis Device views, select **FDDI Configuration**.*

This view provides information on the configuration and operating status of the concentrator. The view is divided into two areas, Station Configuration and SMT Information.

## Station Configuration

This area of the FddiMAC Device Configuration view provides information specific to the FDDI station.

### Ring State

The current state of the FDDI ring. Table 21 lists the possible states and their descriptions.

### MAC Configuration

The actual configuration of the station. Table 22 (Page 49) lists the possible configuration states and their descriptions.

### Current MAC Path

The ring that this station resides on. Possible values are: `Primary`, `Secondary`, `Local`, or `Isolated`.

### MAC Address

The MAC (physical) address of this station.

### MAC Count

The number of MACs supported by this station.

### Non Master Ports

The number of non-master ports on this station.

### Master Ports

The number of master ports on this station.

**Table 21: FDDI Ring Stats**

| Ring State | Description |
|---|---|
| Isolated | The concentrator is not attached to the ring. |
| Non-Op | The concentrator is attempting to enter the ring. |
| Ring-Op | The ring is operational. |
| Detect | The claim/beacon process of the FDDI ring protocol has exceeded one second. This indicates a potential problem. |
| Non-Op-Dup | The ring failed to complete the claim/beacon process because a duplicate FDDI address has been detected. |

## Table 21: FDDI Ring Stats (Continued)

| | |
|---|---|
| Ring-Op-Dup | The ring is operational, but a duplicate FDDI address has been detected. |
| Directed | The claim/beacon process did not complete within nine seconds. The concentrator is now sending directed beacons to indicate a problem. |
| Trace | A problem has been detected with the station or its upstream neighbor. A trace is being sent to notify the upstream neighbor of the problem. The concentrator and all stations between the concentrator and its upstream neighbor can perform self-tests. |

## Table 22: SMT MAC Configuration States

| Ring State | Description |
|---|---|
| Isolated | The port is not inserted into any path. |
| Local_A | The A port is inserted into a local path and the B port is not. |
| Local_B | The B port is inserted into a local path and the A port is not. |
| Local_AB | Both A and B ports are inserted into a local path. |
| Local_S | The S port is inserted into a local path. |
| Wrap_A | The secondary path is wrapped to the A port. |

## Table 22: SMT MAC Configuration States

| | |
|---|---|
| Wrap_B | The secondary path is wrapped to the B port. |
| Wrap_AB | The primary path is wrapped to the B port and the secondary path is wrapped to the A port. |
| Wrap_S | The primary port is wrapped to the S port. |
| C_Wrap_A | The primary and secondary paths are joined internally in the station and wrapped to the A port. Regarding token flow, all resources on the secondary path precede those of the primary path. |
| C_Wrap_B | The primary and secondary paths are joined internally in the station and wrapped to the B port. Regarding token flow, all resources on the secondary path precede those of the primary path. |
| C_Wrap_S | The primary and secondary paths are joined internally in the station and wrapped to the S port. Regarding token flow, all resources on the secondary path precede those of the primary path. |
| Thru | The primary path enters the A port and emerges from the B port. The secondary path enters the B port and emerges from the A port. |

### SMT Information

This area of the FddiMAC Device Configuration view provides the following configuration information on the FDDI SMT:

**SMT Version**
The version of Station Management (SMT) running.

**OBS Present**
Indicates whether an Optical Bypass Switch (OBS) is connected.

**T-Notify (sec)**
The timer value, in seconds, used in Neighbor Notification Protocol. The allowed range is from 2 to 30 seconds.

**T-Req (milli sec)**
The Target Token Rotation Time (TTRT) bid, in milliseconds, made by this concentrator.

**T-Neg (milli sec)**
The winning TTRT bid, in milliseconds, on the ring.

**TVX (milli sec)**
The valid transmission time, in milliseconds.



# ATM Client Configuration View

***Access:*** *From the **Icon Subviews** menu for the ATM Client Application icon, select **Configuration**.*

This view provides VPI/VPC configuration information on the ATM interfaces.

**Max VPCs (Virtual Path Connections)**
The maximum number of VPCs supported at this ATM interface. At the UNI (User Network Interface), the maximum number of VPCs ranges from 0 to 256.

**Max VCCs (Virtual Channel Connections)**
The maximum number of VCCs supported at this ATM interface.

**Conf VPCs**
The number of VPCs configured for use at this ATM interface. At the UNI (User Network Interface), the configured number of VPCs ranges from 0 to 256.

**Conf VCCs**
The number of VCCs configured for use at this ATM interface.

**Max VPI (Virtual Path Identifier) Bits**
The maximum number of active VPI bits configured for use at this ATM interface. At the UNI (User Network Interface), the maximum

number of active VPI bits configured for use ranges from 0 to 8.

**Max VCI (Virtual Channel Identifier) Bits**
The maximum number of active VCI bits configured for use at this ATM interface.

**ILMI (Interim Local Management Interface) VPI**
The VPI value of the VCC supporting the ILMI at this ATM interface. If the values of both ILMI VPI and ILMI VCI equal 0, then the ILMI is not supported for this ATM interface.

**ILMI VCI**
The VCI value of the VCC supporting the ILMI at this ATM interface. If the values of both ILMI VPI and ILMI VCI equal 0, then the ILMI is not supported for this ATM interface.

**Address Type**
The type of primary ATM address configured for use at this ATM interface.

**Admin Address**
The address assigned for administrative purposes. If this interface has no assigned administrative address or if the address used for administrative purposes is the same as that used for the physical address, then this is an octet string of zero length.

**Neighbor Address**
The IP address of the neighbor system connected to the far end of this interface to which a Network Management Station can send SNMP messages as IP datagrams to UDP port 161 in order to access network management information concerning the operation of that system.

**Neighbor If Name**
The name of the interface on the neighbor system at the far end of this interface, and to which this interface connects. If the neighbor system is manageable through SNMP and supports the field ifName, the value of this field must be identical to that of the ifName for the ifEntry of the lowest level physical interface for this port. If this interface does not have a name, the value of this field is a zero length string.

# Repeater Configuration View

***Access:*** *From the Chassis Device view highlight the appropriate Repeater label on the Chassis Module icon, from* ***Icon Subviews*** *menu, then select* ***Repeater Configuration****.*

The Repeater Configuration view provides information on the configuration and operating status of the selected repeater interface. This view is divided into the four areas described below:

## Repeater Management

This area of the Repeater Configuration view provides the port information described below.

### Port Count

The total number of ports on this LAN segment.

### Ports On

The total number of ports currently in the `ON` state on this network.

### Ports Operational

The number of operational ports on this network.

### Network Ports

Allows you to enable the network ports on this network segment. Possible states are: `NoEnable` and `Enable`.

## Trap Configuration

This area of the Repeater Configuration view allows you to enable or disable the following traps.

### Link Traps

Allows all packets indicating a change in link status to be reported within the trap database. Possible menu selections are: `Disable`, `Enable`, and `Other`.

### Segmentation Traps

Allows all packets indicating a change in segmentation status to be reported within the trap database. Possible menu selections are: `Disable`, `Enable`, and `Other`.

## Alarm Configuration

This area of the Repeater Configuration view provides configuration information on generating alarms for the selected module. This area contains the fields described below.

### Timebase

The user defined time interval, in seconds, for the Traffic Threshold. The lowest allowable value is `10`.

### Traffic Alarms

Allows you to enable or disable detection of Traffic Alarms.

### Traffic Threshold

The threshold value for the number of packets that can be transmitted during the Timebase before generating a traffic alarm. This field is user-configurable from 1 to 4 billion.

### Collision Alarms

Allows you to enable or disable detection of Collision Alarms.

**Collision Threshold**
The threshold value within the alarm timebase which, once that number of collisions per good packet is exceeded, generates a collision alarm. This value is user-configurable. Allowable range is 1 to 15 collisions per good packet.

**Broadcast Alarms**
Allows you to enable or disable detection of Broadcast Alarms.

**Broadcast Threshold**
The threshold value within the alarm timebase which, once that number of broadcasts received is exceeded, generates a broadcast alarm. This value is user-configurable. Allowable range is 1 to ~4 billion.

**Error Alarms**
Allows you to enable or disable detection of Error Alarms. Possible menu selections are: Enable and Disable.

**Error Threshold**
The threshold value for the percentage of errors per good packet that may occur within the Timebase before generating an error alarm. This value is user-configurable from 1 to 100.

## Error Source

This area of the Repeater Configuration view provides a series of buttons that let you select the types of errors to include in the error sum. The selectable error types are as described below.

**CRC**
Packets with bad Cyclical Redundancy Checks.

**Runts**
A packet that is one byte less than the standard Ethernet frame of 64 bytes (not including preamble).

**OOW_Colls**
Collisions out of the standard window due to a network problem.

**Alignment**
Misaligned packets detected.

**No_Resource**
The number of times the module ran out of resources (i.e., lack of buffer space) and could not accept packets.

**Giants**
Packets received that exceed 1518 bytes (not including preamble).

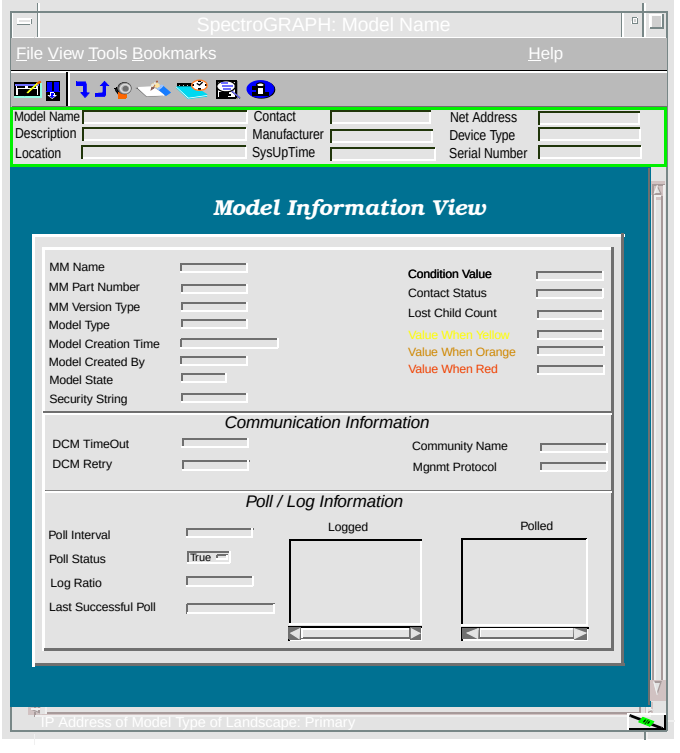
# Model Information View

This section provides a brief overview of the Model Information view.

Model Information views display administrative information about devices and their applications and let you set thresholds and alarm severity for the devices.

Figure 15 shows a sample Model Information view. The layout of this view is the same for all model types in SPECTRUM but some information will vary depending on the model it defines. Refer to the ***SPECTRUM Views*** documentation for a complete description of this view.

**Figure 15: Model Information View**



# Modeling

This section describes how to manually model a 6C105 chassis and a SmartSwitch 6000 module installed in the chassis and place the resulting device icons in their proper SPECTRUM views.

## Introduction

The following topics are covered in this section:



## AutoDiscovery vs. Manual Modeling

SPECTRUM's AutoDiscovery is recommended if you are modeling a network for the first time or want to discover and model a network segment after making changes to it.

AutoDiscovery is not recommended for use when the SmartSwitch 6000 is in Mixed Management mode, see *Management Modes* (Page 7).

Autodiscovery involves manually modeling a seed router, bridge, or switch (if such a model does exist) and then running AutoDiscovery one or more times to complete the network model. You then refine your autodiscovered network model to improve management capabilities.

**Note:** Refer to ***Getting Started with SPECTRUM for Administrators*** and ***How to Manage Your Network with SPECTRUM*** for instructions on using AutoDiscovery and refining your network model.

The manual modeling procedures described in this section should be used when making minor changes to the network. This includes such actions as placing an already discovered module in Mixed Management mode or adding a new chassis or module to the network.

For proper device management, the module's Device icon appear in a Topology view and you may place the chassis's Device icon in a Room Location view. This is true whether you use AutoDiscovery or manual modeling. In some instances, this may require you to copy and paste Device icons into the proper SPECTRUM views. The manual modeling instructions given in this section describe how this is accomplished.

# Manual Modeling Overview

The following alternatives exist for modeling your network components manually.

- **Modeling using the chassis IP address in a Location View**. Create a chassis model within a Room Location view using the chassis's IP address. Once the chassis is modeled, SPECTRUM's distributed management feature identifies and models the modules contained in the chassis and places their Device icons in the chassis's Container view. You then copy and paste the Device icons into the Topology view.
- **Modeling using the Chassis IP Address in the Topology view**. You can also create the chassis IP address in the Topology view by modeling with the chassis's IP address in the Topology view and all the models in the chassis will appear here. Locate the chassis Device icon in the Search Manager. Select an attribute by which you can search for your Chassis. Create a Room Location view and copy the chassis Device icon into the Room Location view.

**Note:** This only works when models are in the distributed mode.

# Modeling Using the Model Type SmSwChasCont

You can also model the modules in a Chassis Container using the model type **SmSwChasCont**. This is a container that is modeled in the Universe view to contain the devices in a given chassis. These devices must be manually modeled in the container or cut and pasted into the Topology view for this container.

The advantage of using the SmSwChasCont model type is that it allows you to group all of your devices in a given chassis into one view, and cleans up the Universe view.

To navigate down into the Chassis Container SS6000 Topology view, simply double-click the down arrow on the SmSwChasCont icon.

**Note:** You must use the model type, SmSwChasCont. You cannot model by IP address as it is not an actual device.

**Figure 16: Chassis Container**

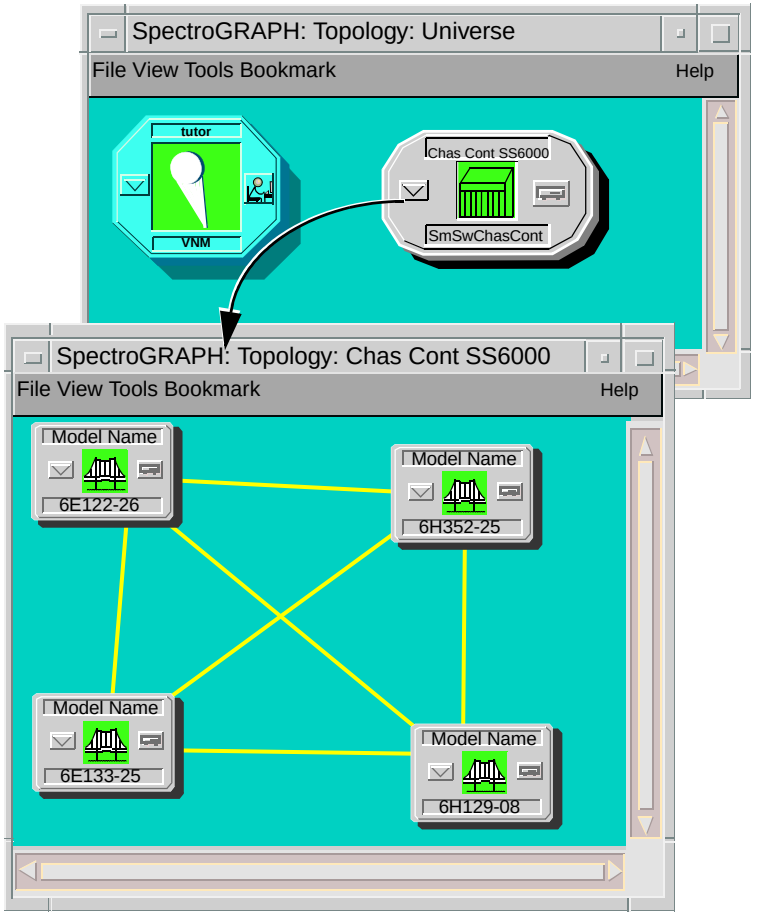


Table 23 lists the Icon Subviews menu available from the Chassis Container Device icon. These views are specific to using the SmSwChasCont model type and allow for a central place for all chassis information to be accessed.

**Table 23: Icon Subviews menu for Chassis Container**

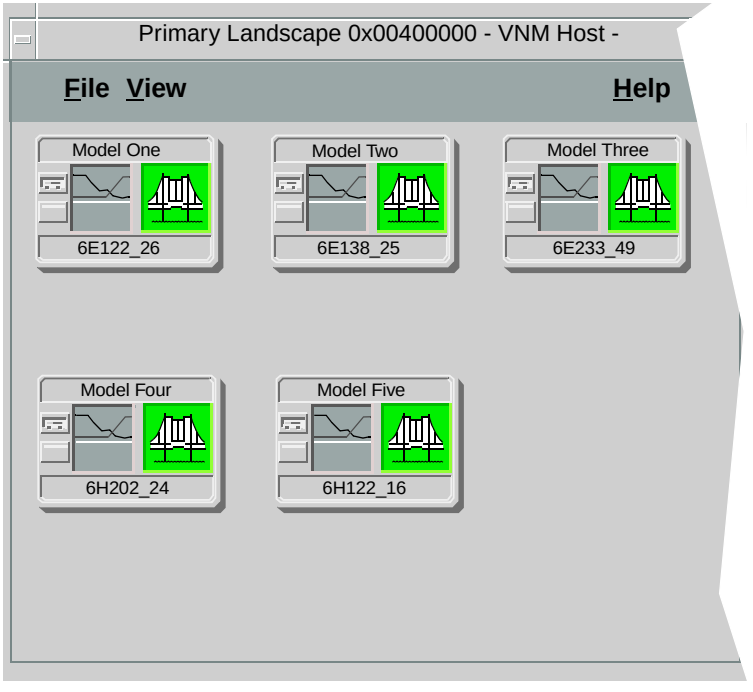
| Option | Accesses the... |
|---|---|
| Topology | Opens the Topology View, which contains the SmartSwitch modules that the user has placed/modeled in the container. |
| Chassis Applications | Opens the Supported Applications. |
| Device > Chassis | Opens the *Chassis Device View* (Page 16). |

# Container View

***Access:*** *From the **Icon Subviews** men for the Chassis Device icon, select **Container View**.*

This view (Figure 17) displays Location view Device icons for each module modeled in SPECTRUM and contained in the chassis.

**Figure 17: Chassis Container View**



# Preparation for Modeling

Before modeling the chassis, you should be familiar with the process of creating models and accessing views. Refer to ***Getting Started with SPECTRUM for Administrators*** and ***How to Manage Your Network with SPECTRUM*** for instructions. You should also be familiar with any network management and firmware requirements described in the 6C105/6C107 chassis firmware documentation.

**Caution:** For proper modeling, the chassis and its installed modules must not be in Mixed Management mode. Each module should have its own IP address or the chassis should be configured with a single IP address.

# Modeling Using the Chassis IP

The chassis model can only be placed in a Room Location view. The Room Location view is created by starting at the Universe level view and navigating into the Room Location level, as described below.

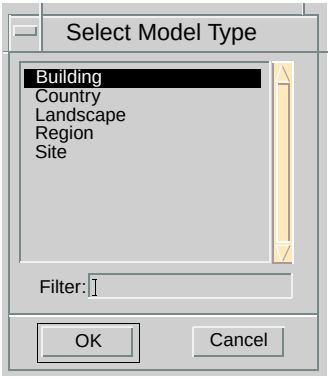
1. At the Universe level, select **View > New View > Location.**

   This places you at the top level of the Location views.

2. Access the Edit mode and select **Edit > New Model**.

   The Select Model Type dialog box displays (Figure 18).

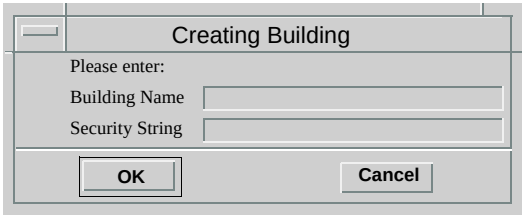
**Figure 18: Select Model Type Dialog Box**




3 Select **Building** and then click **OK**.

The Creating Building dialog box displays (Figure 19).

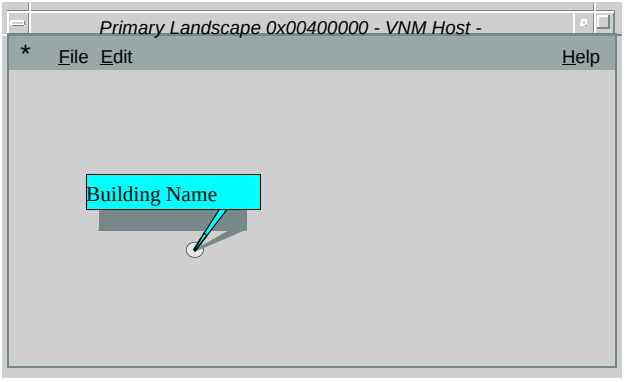
**Figure 19: Creating Building Dialog Box**




4 Enter the Building name and a Security String (optional) and click **OK**.

The Building icon appears in the Building Location view (Figure 20).

**Figure 20: Building Location View**




5 Exit the Edit mode and double-click the Building icon to open its Location view.

6 Access the Edit mode and select **View > New Model**.

The Select Model Type dialog box displays.

7 Select **Room** and then click **OK**.

The Room Creation dialog box displays.

8 Enter a Room name and a Security String (optional) and then click **OK**.

The Room icon displays in the Room Location view.

9 Exit the Edit mode.

This places you in the Room Location view, where you can create the chassis model.

10 Double-click the Room icon to open its Location view.

11 Access the Edit mode,

12 Select **Edit > New Model**.

The Select Model Type dialog box displays.

13 Select **6C105** and click **OK**.

The Creating 6C105 dialog box displays.

14 Enter the Network Address (IP) and click **OK**.

15 Exit the Edit mode when the chassis Device icon appears in the Room Location view.

# New Model By IP Option

This option for modeling a module or chassis proceeds as follows:

1 In the appropriate Topology view, select **File > Edit** to place the view in the Edit mode.

2 Select **Edit > New Model By IP**.

The Select Model Type dialog box displays,

3 Enter the IP address assigned to the module.

4 Enter the Community Name that has been assigned locally to the module. The default Community Name value is “public.”

**Note:** See your network administrator to verify that the Community Name has not been changed from “public” to another access policy name.

5 Click **OK**.

SPECTRUM places the Device icon representing the module at the top of the Topology view.

6 Select **File > Close Edit** to exit the Edit mode.

7 See **Positioning the Chassis Device Icon**, below, to properly locate the automatically created chassis Device icon.

# Positioning the Chassis Device Icon

Some of the modeling procedures described above automatically create a chassis Device icon. This icon can be copied into a Room Location view.

1. Create a Room Location view using Steps 1 through 10 in *Modeling Using the Chassis IP* (Page 59).
2. To locate the chassis Device icon, activate the Topology view and select **Utilities > Search Manager**.
3. Copy the chassis Device icon into the Room Location view as follows:
   a. Within the Find view, select **File > Edit**.
   b. Select **6C105**.
   c. From the Edit menu, select **Copy**.
   d. Access the Room Location view and select **File > Edit** to enter the Edit mode.
   e. Select **Paste**.

   The icon appears in the Room Location view.

   f. Exit the Edit mode.

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